

Claims

[1] A honeycomb structure comprising:

porous partition walls, and

a plurality of cells each functioning as a passage of a
5 fluid, surrounded by the porous partition walls and arranged
so as to be parallel to each other in the central axis
direction of the honeycomb structure,

characterized in that a plurality of honeycomb segments
having such a shape that each segment is part of the
10 honeycomb structure and, when bonded to each other in a
direction normal to the central axis of the honeycomb
structure, forms the honeycomb structure, are bonded
integrally by a bonding material containing a ceramic as a
main component and a particulate filler.

15 [2] A honeycomb structure according to Claim [1], wherein
the particulate filler contained in the bonding material has
an average diameter of 10 to 300 μm .

[3] A honeycomb structure according to Claim [1] or [2],
wherein the particulate filler contained in the bonding
20 material has a hollow structure.

[4] A honeycomb structure according to any of Claims [1] to
[3], wherein the bonding material contains the particulate
filler in an amount of 20 to 70% by volume.

[5] A honeycomb structure according to any of Claims [1] to
25 [4], wherein the bonding material further contains at least
one member selected from the group consisting of inorganic
particles, an oxide fiber and a colloidal oxide.

[6] A honeycomb structure comprising:

porous partition walls, and

30 a plurality of cells each functioning as a passage of a

fluid, surrounded by the porous partition walls and arranged so as to be parallel to each other in the central axis direction of the honeycomb structure,

characterized in that a plurality of honeycomb segments
5 having such a shape that each segment is part of the honeycomb structure and, when bonded to each other in a direction normal to the central axis of the honeycomb structure, forms the honeycomb structure, are bonded integrally by a bonding material and the resulting bonded
10 body is coated, at the outer surface, with a coating material containing a ceramic as a main component and a particulate filler.

[7] A honeycomb structure according to Claim [6], wherein the particulate filler contained in the coating material has
15 an average diameter of 10 to 300 μm .

[8] A honeycomb structure according to Claim [6] or [7], wherein the particulate filler contained in the coating material has a hollow structure.

[9] A honeycomb structure according to any of Claims [6] to
20 [8], wherein the coating material contains the particulate filler in an amount of 20 to 70% by volume.

[10] A honeycomb structure according to any of Claims [6] to [9], wherein the coating material further contains at least one member selected from the group consisting of inorganic
25 particles, an oxide fiber and a colloidal oxide.